

# Notice of Allowability

Application No.

10/538,867

Examiner

Cindy D. Khuu

Applicant(s)

HILLER, BERNHARD

Art Unit

2863

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/21/07.
2. ☒ The allowed claim(s) is/are 1,4-5, 8-27,29-32, 34-37 and 39-55.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Pertinent Art Cited*

The following US Patent Applications reveal the current state of the art:

Herzer (US 2005/0052179) teaches a method for measuring the position of an object (Fig. 9), the steps of said method comprising: calculating a first digital position signal ( $D_A$ ) which represents a position measured by a position sensor (200) from an input sine signal ( $U_{sin}$ ) and an input cosine signal ( $U_{cos}$ ) produced by the position sensor (200) (Fig. 9); digitally filtering (330; Paragraph 62, lines 1-5) said first position signal ( $D_A$ ) for forming a second digital position signal ( $D_C$ ) having a resolution which is higher than that of said first digital position signal (Paragraph 63, lines 1-10); and producing an output sine signal ( $SinOut$ ) and an output cosine signal ( $CosOut$ ) as a function of the second digital position signal (Paragraph 65), the input signals ( $U_{sin}$ ,  $U_{cos}$ ) having signal periods which are multiples of the signal periods of the output signals ( $SinOut$ ,  $CosOut$ ) (Paragraph 57, lines 3-4) respectively, such that the frequency of the output signals ( $SinOut$ ,  $CosOut$ ) is increased relative to the frequency of the input signals ( $U_{sin}$ ,  $U_{cos}$ ) (Fig. 9; smaller signal periods, higher frequency), respectively.

However, Herzer does not teach at least the step of filtering errors out of the position signal includes the step of using stored error curves which are dependent on the signal transmitter.

Herzer (US 2005/0052179) teaches a method for measuring the position of an object (Fig. 9), the steps of said method comprising: calculating a digital position signal ( $D_A$ ) which represents a position measured by a position sensor (200) from an input sine signal ( $U_{sin}$ ) and an input cosine signal ( $U_{cos}$ ) produced by the position sensor (200) (Fig. 9); producing an output sine signal and an output cosine signal as a function of the digital position signal ( $D_A$ ) (Fig. 9; 320, A/D), the signal periods of the input signals ( $U_{sin}$ ,  $U_{cos}$ ) being multiples of the signal periods of the output signals ( $SinOut$ ,  $CosOut$ ) (Paragraph 57, lines 3-4), respectively; and error-correcting (filtering) the input signal and the input cosine signal before calculating the position signal (310; Fig. 9; Paragraph 60, lines 7-13).

However, Herzer does not teach at least the step of correcting the phase errors in the input sine signal and/or the input cosine signal during the step of error-correcting.

***Allowable Subject Matter***

Claims 1, 4-5, 8-27, 29-32, 34-37, and 39-55 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 1 is the inclusion of the limitation "filtering errors out of the position signal includes the step of using stored error curves which are dependent on the signal transmitter". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

The primary reason for the allowance of claim 23 is the inclusion of the limitation "a digital filter arranged between the calculation unit and a register wherein the position signal has a resolution of  $i$  bits upstream of the digital filter, and has a resolution of  $k$  bits downstream from the digital filter, where  $k > i$ ". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

The primary reason for the allowance of claim 35 is the inclusion of the limitation "correcting the phase errors in the input sine signal and/or the input cosine signal during the step of error-correcting". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

The primary reason for the allowance of claim 46 is the inclusion of the limitation "matching the quadrant position of a reference signal relative to the input signals to the output signals". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

The primary reason for the allowance of claim 52 is the inclusion of the limitation "a signal conditioning unit arranged before the calculation unit, said signal conditioning unit adapted to calculate and correct discrepancies from the nominal states of the input sine signal and the input cosine signal". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

Claims 4-5, 8-22, 24-27, 29-32, 34, 36-37, 39-45, 47-51 and 53-55 are allowed due to their dependency on claims 1, 23, 35, 46 and 52.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

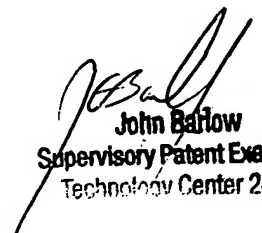
***Fax/Telephone Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy D. Khuu whose telephone number is (571) 272-8585. The examiner can normally be reached on M-F, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 5/30/07

  
**John Barlow**  
Supervisory Patent Examiner  
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